

REMARKS

Reconsideration of the above-identified application in view of the foregoing amendments and following remarks is respectfully requested.

A. Claim Status / Explanation of Amendments

Claims 1-10 are pending and were rejected. As to the merits, claims 1-4, and 9-10 were rejected pursuant to 35 U.S.C. § 103(a) as allegedly being unpatentable over Applicant's Admitted Prior Art ("AAPA") in view of U.S. Patent No. 5,355,164 to Shimoyama, et al. ("Shimoyama") and further in view of Japanese Patent Application No. JP 04-37166 A to Tetsuji ("Tetsuji"). [4/30/08 Office Action, p. 5]. Claim 5 was rejected pursuant to 35 U.S.C. § 103(a) as allegedly being unpatentable over AAPA and Shimoyama in view of Tetsuji and further in view of U.S. Patent No. 6,353,223 to Ookawa ("Ookawa"). [4/30/08 Office Action, p. 11]. Claims 6 and 8 were rejected pursuant to 35 U.S.C. § 103(a) as allegedly being unpatentable over AAPA and Shimoyama in view of Tetsuji and further in view of U.S. Patent No. 6,304,292 to Ide, et al. ("Ide"). [4/30/08 Office Action, p. 13]. Claim 7 was rejected pursuant to 35 U.S.C. § 103(a) as allegedly being unpatentable over AAPA and Shimoyama in view of Tetsuji and further in view of U.S. Patent No. 6,700,609 to Abe ("Abe"). [4/30/08 Office Action, p. 13].

By this paper, claim 1 is amended such that the element "for DC signal recovery" is deleted throughout. Claim 1 is also amended to recite, *inter alia*, that the first and second correction units are "adapted to correct signals" and that the second correction unit corrects signals of the "effective pixel area, which are corrected by said first correction unit, by evenly subtracting a representative value which is based on the second reference signal." Support for the amendments to claim 1 may be found throughout the application as originally filed including, for example, Figs. 1-2 and accompanying descriptive text.

No new matter will be introduced into this application by entry of these amendments.

Entry is respectfully requested.

B. Claims 1-4 and 9-10 are Patentable over AAPA in view of Shimoyama and further in view of Tetsuji

Applicant respectfully traverses the rejection of claims 1-4 and 9-10. As set forth in detail below, AAPA, Shimoyama, and Tetsuji do not teach, disclose, or suggest a first correction unit which corrects signals by subtracting the first reference signal with respect to each corresponding horizontal line. Accordingly, the Section 103 rejection should be withdrawn.

Applicant's claim 1, as amended, recites:

1. An image sensing apparatus using an image sensing element which has a plurality of pixels arrayed in horizontal and vertical directions, wherein:

the image sensing element includes an effective pixel area which outputs signal of an object image, a first reference pixel area which outputs a first reference signal, and a second reference pixel area which outputs a second reference signal,

wherein a pixel in the first reference pixel area is shielded from light and does not have a photoelectric conversion element, and

wherein a pixel in the second reference pixel area is shielded from light and has a photo-electric conversion element and outputs a signal including dark current component generated in the photoelectric conversion element,

said image sensing apparatus comprising:

a first correction unit adapted to correct signals of the effective pixel area by subtracting the first reference signal with respect to each corresponding horizontal line; and

a second correction unit adapted to correct signals of the effective pixel area, which are corrected by said first correction unit, by evenly subtracting a representative value which is based on the second reference signal.

At the outset, the Office Action repeats its assertion that "AAPA does not explicitly disclose the claimed first reference signal for DC signal recovery, that a pixel in the first

reference pixel area is shielded from light and does not have a photoelectric conversion element, and a correction unit adapted to DC recovery signals of the effective pixel area based on the first reference signal with respect to each corresponding horizontal line.” [4/30/08 Office Action, p. 6]. The Office Action again attempts to remedy these deficiencies through the introduction of Shimoyama, but affirms that “the combined teaching of AAPA in view of Shimoyama et al. fails to teach that the first reference pixel area is shielded from light and does not have a photoelectric conversion element; and that said correction unit adapted to DC recovery signals of the effective pixel area corrects the signals based on the first reference signal with respect to each corresponding horizontal line.” [4/30/08 Office Action, p. 7-8].

The Office Action repeats its contention that this deficiency is disclosed by Tetsuji which shows in Fig. 1 that optical signals are obtained by calculating output signals of an effective pixel area I, an optical black area II whose overall area is shielded from light, an optical black area III which has no light receiving portions with the overall area being shielded from light, and an optical black area IV which has no light receiving portions with the overall area having an area for the light receiving part opened to let the light hit said area. The Office Action further contends that “Tetsuji teaches that when in operation the signal of a pixel is corrected by subtracting the noises represented by signals of the areas II, III and IV, represented as V_1 , V_2 , and V_3 respectively from the image signal of said pixel, said signal represented as V by using the equation $A = V - V_1 + V_2 - V_3$.” [4/30/08 Office Action, p. 3-4].

Thus, the Office Action asserts that Tetsuji's area III corresponds to Applicant's first reference area where a pixel is “shielded from light and does not have a photoelectric conversion element” as recited in claim 1. Applicant notes, however, that Tetsuji's area III has a noise component represented by V_2 which is *not subtracted* from the image signal V . The equation

$(A = V - V_1 + V_2 - V_3)$ as indicated above by the Office Action and provided by Tetsuji on p. 7 shows that the component V_2 is actually *added* to the image signal V . Thus, irrespective of whether component V_2 is applied to correct the signal with respect to each corresponding horizontal line, Tetsuji does not actually subtract the signal as required by Applicant's claim 1. Tetsuji therefore does not remedy deficiencies in AAPA and Shimoyama since Tetsuji fails to teach a first correction unit which corrects the effective pixel area by subtracting the first reference signal.

Accordingly, AAPA, Shimoyama, and Tetsuji - whether alone or in combination - fail to teach, disclose, or suggest a "first correction unit adapted to correct signals of the effective pixel area by subtracting the first reference signal with respect to each corresponding horizontal line" and that the second correction unit is "adapted to correct signals of the effective pixel area, which are corrected by said first correction unit, by evenly subtracting a representative value which is based on the second reference signal" as recited in Applicant's amended claim 1. Applicant respectfully submits that claim 1 is patentably distinct from AAPA, Shimoyama, and Tetsuji for at least this reason. Independent claim 9 incorporates the same limitations and, hence, is asserted to be patentably distinct for at least similar reasons. Since claims 2-4 and 10 depend either directly or indirectly from claims 1 and 9, respectively, they are all allowable for the same additional independent reasons set forth with respect to claims 1 and 9. Accordingly, the Section 103 rejection of claims 1-4 and 9-10 should be withdrawn.

C. Claims 5-8 are Patentable over AAPA and Shimoyama in view of Tetsuji and further in view of the Cited References

Applicant respectfully traverses the rejection of claims 5-8 under 35 U.S.C. § 103(a) as allegedly being unpatentable for obviousness over AAPA and Shimoyama in view of Tetsuji and

further in view of Ookawa, Ide, or Abe. For at least similar reasons as stated above and for the quaternary references failing to overcome the deficiencies of the primary, secondary, and tertiary references, claims 5-8 are asserted to be patentably distinct. Accordingly, Applicant respectfully traverses the Section 103 rejection of claims 5-8 over AAPA and Shimoyama in view of Tetsuji and further in view of Ookawa, Ide, or Abe. It is respectfully submitted that all of the pending claims are now allowable for the above reasons and early, favorable action in that regard is respectfully requested.

Applicant has chosen in the interest of expediting prosecution of this patent application to distinguish the cited documents from the pending claims as set forth above. These statements should not be regarded in any way as admissions that the cited documents are, in fact, prior art. Likewise, Applicant has chosen not to swear behind the references cited by the Office Action, or to otherwise submit evidence to traverse the rejection at this time. Applicant, however, reserves the right, as provided by 37 C.F.R. §§ 1.131 and 1.132, to do so in the future as appropriate. Furthermore, Applicant has not specifically addressed the rejections of the dependent claims. Applicant respectfully submits that the independent claims from which they depend are in condition for allowance as set forth above. Accordingly, the dependent claims also are in condition for allowance. Applicant, however, reserves the right to address such rejections of the dependent claims in the future as appropriate.

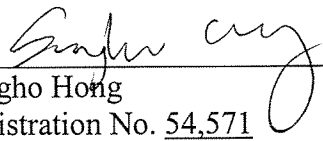
CONCLUSION

For the above-stated reasons, this application is respectfully asserted to be in condition for allowance. An early and favorable examination on the merits is earnestly solicited. In the event that a telephone conference would facilitate the examination of this application in any way, the Examiner is invited to contact the undersigned at the number provided.

THE COMMISSIONER IS HEREBY AUTHORIZED TO CHARGE ANY ADDITIONAL FEES WHICH MAY BE REQUIRED FOR THE TIMELY CONSIDERATION OF THIS AMENDMENT UNDER 37 C.F.R. §§ 1.16 AND 1.17, OR CREDIT ANY OVERPAYMENT TO DEPOSIT ACCOUNT NO. 13-4500, ORDER NO. 1232-5187.

Respectfully submitted,
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